

# OUT & About



The Pacific Region  
Outreach Newsletter



## Theme: Invasive Species

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**Upcoming Themes:**  
Winter — Elected Officials  
Spring — Fire  
Summer — Coastal/Marine  
Fall — Land Protection

## Fighting Aliens with Natives

*Volunteers and native plants defeat aliens at Hakalau Forest*

By Dick Wass

When ancient Polynesians first came to the Big Island of Hawai'i over a thousand years ago, they found pristine beaches and lush rain forests growing on slopes that annually received 100 to 250 inches of rain. Today the staff at Hakalau Forest National Wildlife Refuge, and a corps of volunteers willing to travel several hours on a bumpy, 4-wheel drive road to reach the refuge, are battling alien plants and animals introduced centuries later in order to restore this tropical paradise to its former grandeur.

The earliest Hawaiians found a dense forest of stately koa and red-blossomed 'ohi'a trees growing on much of what is now the refuge. They saw the rare and endangered haha and oha wai, as well as the 'olapa, ohelo, kawa'u, hapu'u, and other trees and shrubs with names that capture the music of the Hawaiian language.

During the late 1700s, introduction of non-native species intensified. As a

result, about 5,000 acres of the 32,730-acre refuge have been largely denuded by more than 150 years of grazing by cattle, sheep and pigs.

One of the refuge goals is to restore the native forest. The refuge has built 44 miles of fence to exclude cattle and pigs, eliminated domestic cattle grazing, and controlled non-native plants with chemicals, fire — and hand removal accomplished largely by volunteers.

The most popular volunteer activity is tree planting. Since 1989

See **FIGHTING ...** Page 12



Photo by: Dick Wass

*Volunteers plant seedlings.*

## Public Helps Locate Aliens

*Reporting system pinpointing Chinese mitten crabs*

By Kim Webb

Like its name suggests the Chinese mitten crab, *Eriocheir sinensis*, has large, fuzzy claws and may have an appetite to match its big appendages. This species native to the coastal rivers and estuaries of Korea and China along the Yellow Sea has multiplied by the millions since its first appearance in San Francisco Bay in 1992.

It is now well-established in San Francisco Bay, the Sacramento-San Joaquin Delta, and many rivers and tributaries that flow into the estuary. This non-native species is a menace. In the fall of 1998, migrating adults clogged water intakes at power

plants in the Delta and caused severe problems for fish salvage operations at water diversion projects. At the Central Valley Project Fish Salvage Facility alone, an estimated 1 million crabs were entrained — up to 40,000 per day — reducing native and non-native fish survival to nearly zero.

These watersheds extend for thousands of miles, an area that exceeds professional monitoring capabilities. To address the problem, the Stockton Fish and Wildlife Office recruited the three state agencies and six federal agencies comprising the

See **PUBLIC HELPS ...** Page 7

**Out & About** is published quarterly for Region 1 Fish and Wildlife Service employees.

## STAFF

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## SUBMISSIONS

We welcome your submissions to **Out & About**. Regular sections in the newsletter are:

- Feature Articles
- Case Studies
- Outreach Accomplishments
- Trainings & Workshops
- Announcements
- Q & A
- Letters to the Editor
- Outreach Resources

Articles should be submitted by E-mail or 3-1/2 inch floppy and run 150 to 500 words. Gear writing to newsletter style; avoid technical jargon. Photos welcome. Publication is not guaranteed, though every effort will be made to use submissions.

Submit articles to Jeanne Clark:  
Stone Lakes NWR  
1624 Hood Franklin Road  
Elk Grove, CA 95758  
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E-mail: [jeanne\\_clark@fws.gov](mailto:jeanne_clark@fws.gov)

## SUBMISSION DEADLINES

Spring	April 1
Summer	May 15
Fall	August 15
Winter	November 15

**Out & About** has received U.S. Department of the Interior and Fish and Wildlife Service DI-550 approval.

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## REGIONAL PERSPECTIVE

# The Fight Against Aliens

*Joining the national battle against invasive species*

By Anne Badgley

I have lived in the Pacific Northwest for most of my life. As a child, my family often passed Willapa Bay on our way to the Long Beach Peninsula. Years later, after assuming the position of regional director, one of my first field visits was to Willapa Bay National Wildlife Refuge. I was stunned to see how the bay had changed. The introduced cordgrass, *Spartina*, was smothering the tidal flats. One of the most pristine estuaries on the West Coast had become yet another front line in the battle against invasive species.

My visit underscores what many of us have come to know — that invasive plants and animals are one of the greatest threats to the Service's conservation mission. It is also the reason that controlling and eradicating invasive species is such a high priority in the Pacific Region. To our credit, we have a number of success stories that show we are making some headway with this serious management problem.

Nationwide, wildlife habitat is rapidly changing due to a growing cadre of alien species. Nearly half of the refuges in our Refuge System are besieged by invasive species, affecting management objectives on over six million acres.

Invasive species impacts are so extensive and severe that we regularly read about them in local newspapers. Weed control is now a \$13 billion-a-year industry.

The problem is not new. Provisions regarding invasive species are included in the Lacey Act of 1900 and the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990. The Service administers or helps oversee both acts. We've received recent guidance from Presidential Executive Order 13112, which requires formulation of a National Invasive Species Management Plan.

The Pacific Region's ecosystem diversity — from Pacific Islands to below sea level deserts

and snow-capped mountains — includes a challenging array of invasive species problems. No one understood these challenges better than the late Scott Stenquist, our regional Integrated Pest Management (IPM) coordinator.

IPM, the Service's chosen pest management approach, uses a combination of mechanical, cultural, and biological methods. As part of this approach, Scott

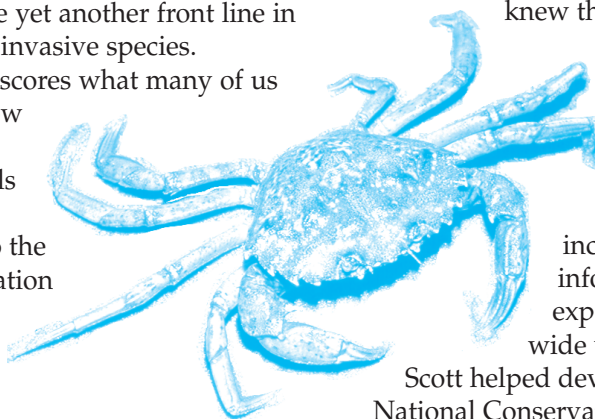
knew that we must emphasize education and awareness of invasive species issues. He recognized the need to offer more training, improve internal coordination, increase networking and information exchange, and expand partnerships with a wide variety of groups.

Scott helped develop the first ever National Conservation Training Center course on invasive species management and delivered a keynote presentation on the Service's future role in this area. For over a decade, he spent countless hours seeking outreach opportunities and finding ways to pool resources to fight invasive species.

This issue of *Out & About* includes several success stories about the control or eradication of invasive species and the role that outreach has played in complementing biological goals — our way of honoring Scott's broad influence on Region 1 programs.

Each of these stories underscores that eradication and control programs alone are not enough. Whether it's the Oceanic Society Expedition sponsoring volunteer excursions to hand-pull exotic plants on Midway Island or the public workshops, brochures, scientific publications, open houses, and working groups regarding control of *Spartina* in Willapa Bay, we must include outreach in our list of weapons in the battle against invasive species.

*Anne Badgley is the regional director of the Pacific Region. Photo by Gregory C. Jensen®.*



# Alien Hitch-hikers Threaten Waterways

*Preventing spread of zebra mussels a Lewis and Clark challenge*

By Susan Saul and Dennis Lassuy

Reenactors wearing buckskins in pirogues, keelboats, and dugout canoes. A team of U.S. Geological Survey water resource scientists in a research vessel. An Army National Guard platoon in a flotilla of inflatable boats. Commercial tour groups in watercraft ranging from 34-foot voyageur canoes to cruise ships. Thousands of individuals and families paddling or powering their personal watercraft.

Folks like these will be launching on the Missouri and Columbia Rivers during 2003 - 2006 to commemorate the bicentennial of the Lewis and Clark expedition. Any one of them could be the vector that brings zebra mussels to western waters.

Since their introduction to the Great Lakes in 1986 in ships' ballast water, zebra mussels have quickly spread to at least 20 states and two Canadian provinces. They travel by hitch-hiking on hard surfaces, like boat hulls, trailers, and motors, or in standing water, like bilges and live wells.

Zebra mussels grow so densely that they clog pipes, fish screens, and intakes on boat motors. They compete for plankton that form the foundation of the aquatic food chain and coat lake and river beds, smothering native mussels — one of the most endangered groups of freshwater organisms.

To prevent further spread of this harmful invasive species, the Service and state agencies, industry, and user groups have developed the "100<sup>th</sup> Meridian Initiative." One component of the initiative is voluntary boat checks in the six states and one province that straddle the 100<sup>th</sup> meridian and in a growing number of states to the west.

Twice in less than a year, boat inspections in Washington have prevented accidental introduction of zebra mussels into the Pacific Northwest. Brochures, press kits, traveler

information systems (low frequency radio messages) along major highways, and other outreach campaign materials also support the initiative.

Biologists fear that the bicentennial will stimulate cross-continent boat travel, starting in the zebra mussel-infested waters of the Mississippi and Ohio Rivers and moving into the non-infested upper Missouri, Snake, and Columbia rivers as people follow the Lewis and Clark Trail westward.

In response, the National Council of the Lewis and Clark Bicentennial will promote aquatic nuisance species messages as part of its commitment to trail stewardship. The Council, in partnership with the Service, has developed prevention messages and is:

- Encouraging states to put them in tourism brochures;
- Asking media partners to carry them;
- Including them in the Council's publications and website;
- Encouraging authors to include them in guide books; and
- Developing prevention-oriented op-ed pieces for major newspapers.

The Council has invited the Service to sponsor a "mobile workshop" at its annual planning conference next year in Lewiston, Idaho. We will show participants the natural resources, agricultural, and economic activities threatened by zebra mussels and invite them to help us communicate the prevention messages.

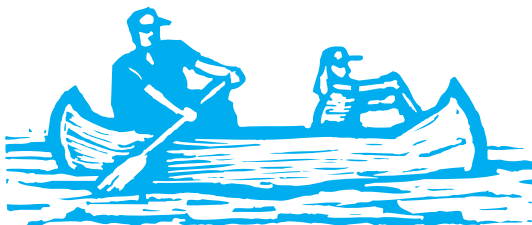
The Council also has asked the Service to participate in 10 national "signature events" between 2003 - 2006, ranging from Monticello, Virginia, to Astoria, Oregon, where prevention messages could be conveyed to huge audiences.

Our most important legacy from the Lewis and Clark Bicentennial could be that zebra mussels were *not* spread west of the 100th meridian.

*"Brochures, press kits, traveler information systems along highways, and other outreach materials support the initiative."*

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*Susan Saul is an outreach specialist in External Affairs and the region's Lewis & Clark Bicentennial coordinator. Dennis Lassuy is the region's aquatic nuisance species coordinator.*





## A Tribute to Scott Stenquist

*How a single employee has made a difference*

By Steve Moore

In January 2001 Scott Stenquist, Region 1's Integrated Pest Management (IPM) Coordinator, unexpectedly died at home in Gresham, Oregon. Over the past decade, Scott helped Service employees address the growing problems of invasive weeds and exotic animals displacing and degrading fish and wildlife habitats. Consistent with IPM principles, Scott urged managers to explore mechanical, cultural, biological, and other techniques before reaching for the pesticide container. When chemicals were appropriate, Scott reviewed scientific literature and consulted with toxicologists to identify the pesticide(s) that would be effective with minimal damage to non-target organisms.

Invasive weeds and exotic animals spread irrespective of political or land ownership boundaries. Scott recognized that effective strategies to combat threats posed by these species included reaching across the fence and partnering with neighbors. One example of applying this management philosophy was his work on saltcedar, an aggressive exotic that has displaced riparian vegetation throughout the Southwest (see article page 9).

Partnering with public agencies and private groups, Scott relentlessly pursued a coordinated attack on saltcedar which recently resulted in release of biological controls (insects) at several saltcedar-infested sites and substantial new funding.



Refuge managers and mosquito abatement districts often hotly disagree over proper management of mosquitoes on refuges. Scott responded by making contacts with wetlands managers, university scientists, and mosquito control professionals nationwide. He secured hundreds of thousands of dollars for research on the non-target effects of chemical mosquito control and pushed for the development of a mosquito management strategy for the Refuge System that was finally initiated a few years ago.

Scott can rest in peace knowing that during his tenure with the Service, he seized many opportunities and truly made a difference. Scott's favorite drink was Diet Pepsi. Join me in raising a glass in recognition of his contributions.

*Steve Moore is division chief of Refuge Operations Support. Photo by Meg Laws.*

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### Invasive Species Information

New websites related to invasive species management include the Federal Interagency Committee for the Management of Noxious and Exotic Weeds — <http://refuges.fws.gov/FICMNEWFiles/FICMNEWHomePage.html>; the National Invasive Species Council — <http://invasivespecies.gov>; Aquatic Nuisance Species Task Force — <http://www.anstaskforce.gov>; and don't forget the Service — <http://invasives.fws.gov>.

### Centennial Handbook on the Way

The *Centennial Handbook* should be delivered to every field station by Refuge Week, October 14 - 20, 2001. It is a resource book of guidance, ideas, examples, practical "how to" tips and sources to help field stations plan their local celebrations of the Refuge System Centennial.

### FWS Web Guidelines

Read Scott Eckert's Media Corner on page 5 about designing websites. Be sure to periodically check the Service's website for the latest in national web design guidelines. This is an excellent design resource! <http://sii.fws.gov/webpublish/styleguide.htm>

### Help for Refuge Friends

A new website has been created for the 209 refuge support groups nationwide and those who wish to establish one. The site provides access to an array of tools and advice for those interested in improving or creating friends groups, including information about cooperating associations, helpful publications and websites, and activities sponsored by the Service and its partners. Spread the word and visit <http://friends.fws.gov>.

## Web Tips and Tricks

*How layering helps you build and modify a website*

By Scott Eckert

Developing a website can be a daunting task, especially for beginners. A blank screen can be as intimidating to a website creator as a blank piece of paper can be to a writer. You may know the old writers' saying: "It's easy; just open a vein and bleed." Here are some tips so that creating a website doesn't feel that way to you!

### THE STORY BOARD

The most important tool of web page development is low-tech — a good story board. First, develop an overall theme for your website. What is the goal of posting this information on the Web? What do you want people to remember or do after leaving your website? Each of the topics presented in the web pages should support the main theme. Pare down your information into easily consumable chunks.

Then sketch out a flow chart on paper. Show where each "chunk" will be in relation to the others, and how each page in the website will link to others. Indicate where photos, illustrations, or other graphics will be needed to help tell your story. Ask yourself how the visitor will navigate your site. Remember, unlike print media, the visitor won't necessarily access your information in a linear sequence.

### THE RIGHT SOFTWARE

Website development technology and software are changing on a near-daily basis. Consider using the Dreamweaver/Fireworks software by Macromedia that many folks in the Pacific Region are now using. Most users report it is easier to learn and get

comfortable with these products than other web design programs.

### START WITH LAYERING

Let's start with the basics and pull back the layers of a web page. Web pages are constructed in several ways. Those who have used Netscape Composer learned that tables were the "backbone" of web pages. This is still true, but let's look at layering first.

Macromedia has incorporated a very friendly way of building pages, called layers. Like a GIS program, where a map is created using coverages or overlays, a web page is built by adding new layers.

Layers are nothing more than holding boxes of text and/or images. You create a layer, place it in a desired location, and put in data. Once a layer is created, it can be moved anywhere on the page. This makes construction a lot easier. You just keep adding layers to complete your page.

### CONVERTING TO NETSCAPE

Now, what about tables still being the backbone of a web page? This is true if your visitor is using Netscape. Unfortunately Netscape does not like layers. That is why the final stage in web construction involves converting the site to tables so Netscape can read it.

This is easily done with the click of a few buttons. The path is: Modify-Convert-Layers to Table. If you don't convert to tables, the site can look very different when viewed from Netscape.

Internet Explorer works well with both tables and layers. The important benefit of layers is that you are not confined to tables as the design tool. Tables are very limiting and it can be difficult to envision the website from tables. With layers, you can easily bring your design concept to fruition.

For more information, check the Intranet web site at: <http://sii.fws.gov> and click on the button "Tips and Tricks," or call me at 503/231-6208.

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*Scott Eckert is the regional web manager in External Affairs.*

## Upcoming Events

### National Wildlife Refuge Week

**When:** Oct. 14-20, 2001

**Where:** Nationwide

**Contact:** Susan Saul  
503/872-2728

### Sandhill Crane Festival

**When:** November 2-4

**Where:** Lodi, CA

**Contact:** 209/367-7840  
[www.lodichamber.com](http://www.lodichamber.com)

### Morro Bay Winter Bird Festival

**When:** January 18-21

**Where:** The Inn at Morro Bay, CA

**Contact:**  
Chamber of Commerce  
800/231-0592  
[www.morrobay.net/birds](http://www.morrobay.net/birds)

### Snow Goose Festival

**When:** January 19-20

**Where:**  
Butte County, CA

**Contact:**  
800/852-8570  
[www.chicochamber.com](http://www.chicochamber.com)



## In Memory

The terrorist attacks on the World Trade Center and the Pentagon occurred during the week that articles for this issue were due. A special thank you goes to the authors who found a way to handle their shock and grief, and our newsletter deadline, at the same time.

Since its inception, this issue of *Out & About* was planned as tribute to Scott Stenquist, who passed away after a long battle with diabetes. As the Region's

Integrated Pest Management Coordinator, Scott understood the importance of outreach in accomplishing his program's objectives.

Sadly, the Pacific Region has also lost another dedicated employee with a passion for wildlife and warmth in working with people and partner organizations. On September 11, Richard J. Guadagno, refuge manager at Humboldt Bay NWR in California, died in the crash of hijacked United Airlines flight #93.

While assistant refuge manager at Ankeny and Baskett Slough NWRs in Oregon, Rich organized habitat restoration projects for volunteers and recruited partners to help build an accessible boardwalk and trail at Ankeny. While at Humboldt, Rich oversaw construction of new administrative offices and a visitor contact station and was already planning the dedication ceremony before he left on what became his final trip.



## Out & About Wins Again!

Once again your Pacific Region outreach newsletter, *Out & About*, has captured first place in the "Internal Communications" category of the Association for Conservation Information's annual publication contest.

This is the fifth time in a row that this newsletter has won either first (three times) or second (twice) place. The awards recognize our efforts to consistently produce a timely, well-designed, and informative publication.

Many thanks to all of you who take the time to submit great stories about your outreach work, successes, and insights. Without your contributions, we could not achieve an award-winning newsletter.

To submit an article, check the themes and deadlines on pages 1 and 2 and follow the submission guidelines.

Articles do not always need to follow the theme, but they must be related to outreach.

Keep those stories coming. Become part of the winning tradition!

## Centennial Products Soon

External Affairs has purchased a Centennial banner for every refuge complex or stand alone refuge in the region. Delivery is expected prior to Refuge Week.

Look for new Centennial communications products in late fall. The Johnson Design Group of Falls Church, Virginia, and their subcontractors Powell Tate

(Jody Powell, President Carter's former press secretary and Sheila Tate, Nancy Reagan's former press secretary) have been contracted to design a new Refuge System logo and a variety of outreach products with a Centennial "look." The tag line "Celebrating a Century of Conservation" will remain.

The firm will also be improving our Internet presence; developing a partner relations strategy; enhancing our media outreach to generate feature coverage and public service announcements; and supporting major special events, such as the Smithsonian exhibit grand opening, National Zoo project grand opening, and the unveiling of commemorative postage stamp series. Questions? Contact Susan Saul, regional centennial coordinator, 503/872-2728.

## Blue Goose Costumes

External Affairs recently purchased two Blue Goose costumes for use at refuge special events. The goose is royal blue with a white "hairy" belly and chin strap and grey feet, legs, and bill.

The costume comes with a guide for its use and maintenance and a supply of rack cards to hand out telling why the blue goose is the mascot of the NWRs. To reserve a costume for your event, contact the "costume keepers:" Art Shine, McNary NWR, 509/547-4942 or John Fulton, San Luis NWR, 209/826-3508.

# Put Out the Welcome Mat

*Initiative aims to get refuges ready for Centennial visitors*

By Susan Saul

One of the best ways to support the goals of the National Wildlife Refuge System is to ensure that refuge visitors have a positive, meaningful experience. Positive first impressions play a big role in forming the public image of the Refuge System. This philosophy forms the backbone of the Visitor Services Initiative project of the Centennial Campaign.

The project has both national and field station elements. Nationally, the project goals are to have a virtual Refuge System visitor center on the web designed to be useful to diverse audiences; an updated visitors guide brochure; improved 1-800-344-WILD customer service capability; and dissemination of accurate information to the authors of travel guides, all by 2003.

At the field level, the goals are that all refuges open to the public will be welcoming, safe, and accessible; have clear and easily accessible information; provide high-quality, accessible, clean and properly maintained visitor facilities; and give courteous and professional customer service.

Every refuge is asked to meet these standards, as defined in the *Visitor Services Requirements Handbook*, by 2003:

- Entrance signs are well-maintained, properly located, and in accordance with the *Service Sign Handbook* or current Director's Orders.

- Welcome and orientation information placed in appropriate locations that are available after hours and universally accessible.
- Clear and well-located directional signs.
- Properly marked and maintained boundary signs.
- Clear, positively worded regulatory information.
- Refuge general leaflet produced to *Service Graphics Standards*.
- Up-to-date website useful to a diversity of audiences.
- Service shield prominently displayed on buildings, vehicles, entrance signs, etc.
- Visitor hours clearly posted.
- Contact station open during peak visitation, including extended evening and weekend hours.
- "Live" customer service available during normal business hours.
- User-friendly telephone answering systems.
- Staff wear complete uniform components with name tags.

Let's be sure to have the welcome mat ready for 2003!

*Susan Saul is an outreach specialist in External Affairs.*

*"Positive first impressions play a big role in forming the public image of the Refuge System."*

## Public Helps...

Continued from Page 1

Interagency Ecological Program to support a reporting system based on public involvement.

With assistance from EPIC, the group developed a Chinese mitten crab survey brochure that both describes the crab and its lifecycle and serves as a postage-paid postcard upon completion; over 5,000 brochures were distributed to the partners and people who live, work, and play in these waters. The public can also use a toll-free phone number or an Internet online form to report sightings.

We got the word out through news releases, by encouraging outdoor writers to generate articles, and by giving presentations to a wide variety of audiences.

Since the program's May 2001 debut we have received about 90 reports, many filed online. We follow up each case personally and have found that people care about their natural resources. They are more than willing to learn and are very anxious to help.

*Kim Webb is a fisheries biologist in the Stockton Fish and Wildlife Office.*





## Crisis Management

*Plan, Rehearse, and Survive!*

By Rick Coleman

*"Communication  
is the foundation  
of a crisis  
management  
plan."*

You're embroiled in a crisis. You're having a hard time thinking clearly. The information you're receiving is incomplete and some may not be from reliable sources. You're getting bombarded with questions. You're not sure what to do.

Sound familiar? We all have experienced crises, but in most of our lifetimes we have never before shared the monumental and tragic loss of a day like September 11, 2001. There are always lessons to find amidst the tragedy. I have found a few.

Many in this nation were glued to their televisions or radios. Communications — getting up-to-date and accurate information — was the key element in handling the response at all levels, from initiating rescue efforts and securing the nation's safety to dealing with grief. Communication is the foundation of crisis management.

On that day and those that followed, it was my job to help handle the glut of reporters anxious for information about the loss of a member of our Service family, Richard Guadagno. I really learned the value of having a crisis management plan in place.

Develop a crisis management plan in advance and be ready to adapt it during the event. The plan should anticipate what your helpers will need and must do to respond to the crisis and meet a range of needs.

Make assignments showing who is responsible for what and who is their backup. Assemble phone lists and equipment locations. Develop a communications plan and procedures.

Always include contacting External Affairs in your crisis plan. During the crisis, we can help you with on-the-spot planning, the news media, Congressional contacts, and other external and internal communications.

Regularly rehearse and revise your plan. This will make your plan more effective in a real crisis. It will be up-to-date. It will seem familiar — another important element in surviving a crisis.

And when a crisis occurs, be sure to take care of yourself, physically and emotionally. Breathe. Rest. Eat. Don't be a stoic: Ask for some help if you need it.

Whether you're coping with local sentiment over a management plan, a natural disaster, or a far-reaching national tragedy, crises are an unescapable part of our lives. We can't change that. But we can change how effectively we deal with the crisis.

We can plan, rehearse, and find ways to survive it in order to create the best possible outcome.

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*Rick Coleman is assistant regional director for External Affairs.*

### TRAININGS & WORKSHOPS

#### Festivals and Special Events

Learn how to find and develop sponsors, foster community ownership, tap available resources, plan logistics, promote and market your activity, and much more.

**Where:** Shepherdstown, WV

**When:** December 11-13

**Contact:** Laura Jones  
304/876-7499

#### Living History Workshop

Get ready for the Lewis and Clark Bicentennial by attending this National Association for Interpretation workshop. Excellent for those who wish to include living history in trail interpretation at their sites. The "best of the best" speakers.

**Where:** Portland, OR

**When:** February 21-24, 2002

**Contact:** Janice Elvidge  
503/861-2471 x221

#### Environmental Education Methods

Learn about successful education materials and ways to work with the community. Hear how to incorporate evaluation strategies into program planning and implementation.

**Where:** Shepherdstown, WV

**When:** February 11-14, 2002

**Contact:** Georgia Jeppesen  
304/876-7388

#### Training Resource Management and Communication Skills

The Cispus Workshop offers tips about how to work with teams, manage meetings, perform outreach, and more. Details at [www.or.blm.gov/cispus](http://www.or.blm.gov/cispus). \$425 for instruction, lodging and meals.

**Where:** Randle, WA

**When:** March 4-8, 2002

**Contact:** Susan Saul, 503/872-2728 or  
Tony Faast, 503/231-6233



## Strength in Numbers

*Consortium fights saltcedar — an aggressive invader*

By Kevin Kilbride

In his vigilant fight against invasive species the late Scott Stenquist, Region 1's Integrated Pest Management Coordinator, frequently sought solutions that crossed state borders and drew on the knowledge of many experts. Nowhere is this more evident than in his efforts to eradicate saltcedar (*Tamarix spp.*). Although saltcedar appears to be a harmless-looking tree or shrub with reddish-brown bark and pink flowers, it is actually an aggressive invader that out competes native vegetation for space, nutrients, and water.

It was originally introduced to protect desert creeks and springs from erosion and provide windbreaks. While it performs these functions, it is also a water-hungry plant that sucks waterways dry and leaves a salty environment in its wake, effectively destroying local biodiversity. Saltcedar infests over 1.5 million acres of riparian habitat on public and private lands throughout the West; approximately 29,000 acres are located on 33 national wildlife refuges.

Control efforts include handcutting and treatment with Garlon™ or using a backhoe/bulldozer to remove stumps and apply Arsenal™ or Rodeo™. Volunteers are often enlisted to help with control efforts.

In 1998 a group of wildlife professionals formed the Saltcedar Consortium as a science-based working group to implement the release of biological control agents (insects) and conduct studies. The Consortium is composed of 34 scientists from throughout the West representing private organizations, academia, and local, state, and federal agencies who now share ideas, coordinate research and control efforts, and bring the word to the public.

The Consortium meets periodically to review management actions and plan future strategies. Members also extensively network in between meetings.

Scott Stenquist represented the Service on the Consortium. He directed the first Consortium study to establish cage experiments with leaf beetles (*Diorhabda elongata*) at Stillwater NWR.



Photos by: Dan Dinkler

*Above: Mature stand of saltcedar along Alamo River towers over refuge worker.*

*Below: Saltcedar on refuge ditch bank.*

His work involved a lot of outreach. Scott's efforts with the National Fish and Wildlife Foundation regarding biological control resulted in a grant to expand research to state and federal lands in Texas, Colorado, Kansas, Wyoming, Utah, Nevada, and California.

On behalf of the Consortium, he presented a paper on integrated weed management for saltcedar at the 1999 International Symposium for the Biological Control of Weeds. The Consortium also has published articles about its goals and activities in regional newsletters and received its share of news media coverage when preparing to initiate control programs.

Like other invasive species, many people do not understand how this delicate-looking tree could be so harmful. The continued collaboration of the Consortium, along with increased public outreach, will be essential to halt the spread of this Eurasian invader and save local ecosystems.

*Kevin Kilbride is a wildlife biologist in the Branch of Refuge Biology.*

### San Diego Bird Festival

**When:** February 7-10  
**Where:** San Diego, CA  
**Contact:**  
 Imperial Beach  
 Chamber of  
 Commerce  
 619/429-5378  
[www.flite-tours.com/festival.htm](http://www.flite-tours.com/festival.htm)

### Klamath Basin Bald Eagle Conference & Festival

**When:** February 15-17  
**Where:**  
 Klamath Falls, OR  
**Contact:**  
 800/445-6728  
[www.eaglecon.org](http://www.eaglecon.org)

### California Duck Days

**When:** February 16-17  
**Where:** Davis, CA  
**Contact:**  
 530/758-1286  
[www.duckdays.org](http://www.duckdays.org)

### Salton Sea International Bird Festival

**When:** February 15-18  
**Where:** Holtville, CA  
**Contact:**  
 760/344-5FLY  
[www.imperialcounty.com/birdfest](http://www.imperialcounty.com/birdfest)

## Good Science Not Always Enough

*Outreach efforts essential to combat killer algae and green crabs*

By Mary Mahaffy and Jack Fancher

*"Outreach efforts are becoming a vital component of 'selling' the approach..."*

Sound science is the foundation of the fight against invasive species. But more and more often, sound science is not enough: Outreach efforts are becoming a vital component of "selling" the approach, rallying support for a given project, and assuring its success. This has clearly been the case with programs aimed at eradicating two coastal menaces: killer algae and green crabs.

### STOPPING KILLER ALGAE

In June 2000, divers monitoring eel grass beds in a Southern California tidal lagoon discovered the "killer algae" (*Caulerpa taxifolia*). This tropical algae, which is threatening the Mediterranean Sea with an ecological disaster, had never been found in the Western Hemisphere.

Although killer algae is not harmful to humans, it is a menace to marine life because it smothers eelgrass and other aquatic plants that feed and support marine animals. Scientists suspect that someone dumped unwanted aquarium water and contents into the lagoon, initiating its spread. *Caulerpa taxifolia* was banned for sale in 1999 under the Federal Noxious Weed Act, with a ban on the genus *Caulerpa* pending in the California legislature.

Recognizing the scope of the problem, the Service's San Diego Bay Coastal Program, nine other federal, state and county agencies, and two private companies joined resources and expertise to eradicate killer algae from two locations near Carlsbad and Huntington Beach. Since a piece as small as a millimeter can generate a new plant and spread its infestation, public outreach was an important component of the program.

A lot of public contact was required to explain the need for submarine enclosures and inject chlorine to kill the algae,

discuss impacts to imperilled species, and publicize bans on fishing and boating in the containment areas. The multi-layered outreach effort used a wide range of tools, from issuing news releases and holding town hall meetings to distributing mass-produced pamphlets.

### HALTING GREEN CRABS

Partnerships were also important in the Pacific Northwest, where the Coastal Program's Puget Sound Program (PSP) joined efforts with other Washington agencies, local governments, and non-profit organizations to monitor the presence of another invader, the European green crab (*Carcinus maenas*).

The crab was first reported in San Francisco Bay in 1989, probably accidentally introduced via ballast water. Strong El Niño currents likely transported crab larvae north, where they were found in Oregon in 1997 and off Washington's outer coast in 1998.

The green crab is a voracious predator that feeds on bivalve mollusks, polychaetes, small crustaceans, and other organisms. In Maine the green crab was blamed for the collapse of the soft-shell clam fishery. In California, Manila clam stocks have been affected. In Washington there is concern about the crab's impact on clam and oyster industries and the Dungeness crab fishery.

In order to succeed our monitoring program needs a lot of "eyes." The PSP and Washington Department of Fish and Wildlife are supporting a local non-profit organization that recruited and trained volunteers to monitor presence of the crab in Puget Sound.

To date green crabs have not been found in Puget Sound, the San Juan Islands, the Washington coast, or the Strait of Juan de Fuca. But without outreach efforts between agencies, local governments, non-profit groups — and our volunteer eyes — the extensive monitoring vital to this early warning system could not be conducted. **O**

*Mary Mahaffy is a biologist in the Western Washington Office and Jack Fancher is a biologist in the Carlsbad Fish and Wildlife Office.*



## Invasion of the Habitat Snatchers

*Working group assembles to eradicate water hyacinth*

By Jeanne Clark

It's a colorful, showy plant. People buy it to beautify their backyard aquatic landscapes. But water hyacinth (*Eichornia crassipes*) also invades waterways and open water, forming dense, impenetrable mats that choke out aquatic life.

"Water hyacinth is just plain death to open water habitat and waterways," says Tom Harvey, project leader at Stone Lakes NWR in California.

"It will cover open water from bank to bank, decrease dissolved oxygen, and bury organisms under rotting plants and silt. Channels and waterways can no longer carry water for wetlands or irrigating crops, or provide flood protection."

Controlling it in the 800 acres of lakes, sloughs, and waterways in the 13,000-acre Stone Lakes Basin posed a huge management and outreach challenge. Part of the problem was educating the public to discourage new infestations. The plant originally appeared in the basin during the early 1990s. Sold by nurseries for backyard ornamental ponds, it had escaped into nearby creeks or was dumped purposely by people who thought this was a good method of disposal.

The rest of the problem was aggressive management — getting rid of an alien that grew at logarithmic rates. As few as 25 plants can spread to cover more than two acres in a single growing season. The seeds can remain viable for up to 15 years.

Harvey saw a great partnership opportunity for the refuge. First he and others concerned about the problem formed the Stone Lakes Basin Water Hyacinth Control group, a consortium of 17 federal, state, and local agencies, elected officials, and eight local private landowners. The group agreed on a five-year plan of attack. Every partner ponied up materials, labor, and/or financial support.

Early on the group briefed the Sacramento County Board of Supervisors. They were rewarded for their efforts with annual contributions of funding and herbicides.

Over the course of five years, the group has assembled and spent an average of \$100,000 annually. They leveraged the county

funds and their own in-kind contributions by applying for and receiving grants from both the National Fish and Wildlife Foundation and the CALFED Bay-Delta Program.

The CALFED grant included funds to produce a full-color "Weed Alert" brochure, which was distributed to more than 15 marinas and bait shops. The brochure discourages its use in ornamental ponds and enlists public support to responsibly dispose of the plants and prevent new infestations.

The result of this program speaks for itself. Five years ago, water hyacinth covered over 200 acres in the Stone Lakes Basin, or more than 40 percent of the open water. Spraying was accomplished using ground rigs, airboats, and john boats. Tiny, overgrown creeks and sloughs were treated through hand spraying and removal, plant by plant.

Today this combination of management and outreach has reduced infestations to less than five acres, with control on the horizon.

"We could have never tackled this problem alone," says Harvey.

"We had to do a lot of outreach just to assemble our working group. We had to make presentations, interact with the media, and write effective grant proposals. Along the way we hopefully educated recreational boaters, nurseries, and our neighbors so the control we've fought so hard to gain isn't squandered."

**O**

*Jeanne Clark is editor of Out & About and outreach coordinator at Stone Lakes NWR.*



Photo by: Paul Boyle

*Refuge staff removes water hyacinth by hand.*

*"This combination of management and outreach has reduced infestations to less than five acres..."*



## Fighting...

Continued from Page 1

they've helped to plant more than 225,000 native seedlings. Most of the outplants are koa, but 21 other species have been planted, including six that are endangered.

With direction from the refuge staff, volunteers also propagate native and endangered plants in our own greenhouse, pick and shuck seeds, fertilize outplants, and conduct weed control. These talented, versatile helpers guide bird hikes, enter and proof computer data, assist with removal of old fences, and maintain refuge structures, as well.

Except for the endangered plants, all of our seedlings have been planted in abandoned pastures carpeted with alien grasses introduced as forage for cattle and sheep. Gorse, an introduced weed, also infests these grasslands.

Since 1988 the refuge has expended considerable resources to control gorse. Much of it has now been treated, but the seeds can remain viable in the soil for 30 years and are

replenished from gorse on adjacent property.

We've used chemicals, prescribed fire, bulldozing, and hand grubbing (often volunteer hands) to fight this persistent alien. We've

also turned the tables and fought aliens with natives! The native trees and bushes we plant in areas previously infested with gorse will eventually form a multi-layered canopy that shades and cools the ground, thereby limiting gorse seed germination and seedling growth.

Volunteers are an essential component of the resource management program at the refuge. In FY99, 224 volunteers provided 1,792 hours of assistance and in FY00, 461 volunteers provided 3,688 hours of effort.

We have "cultivated" such a faithful following that we need to do very little volunteer recruiting. Usually the Boy Scouts, Sierra Club, University of Hawaii, Hawaii Nature Center, Nature Conservancy, local high schools, museums, service clubs, etc. contact us to offer assistance. We try to take good care of them and make the experience worthwhile.

We normally provide 4-wheel drive transportation to the refuge (an arduous two-hour drive from Hilo), accommodations for up to 12 people in an onsite cabin, a staff member to lead and supervise the group, and necessary tools and supplies.

Volunteers provide their own transportation to the Big Island (about half the groups are from Oahu, Maui, Kauai, or the mainland), food, sleeping bags, and personal gear.

Most groups come for a two or three-day weekend. They work the first day or two and we usually provide a guided bird and natural history hike on the last day. We discuss refuge management strategies and issues and tour the projects to garner support for the refuge and stimulate appreciation for the native Hawaiian forest community.

Each volunteer is also given a custom-designed Hakalau Forest NWR tee-shirt picturing the endangered Akiapola'au (a forest bird). The tee-shirts are not for sale; they must be earned and there is considerable status associated with them.

They show that the wearer has been to Hakalau Forest, cares about the environment, and has worked hard to improve native habitat.

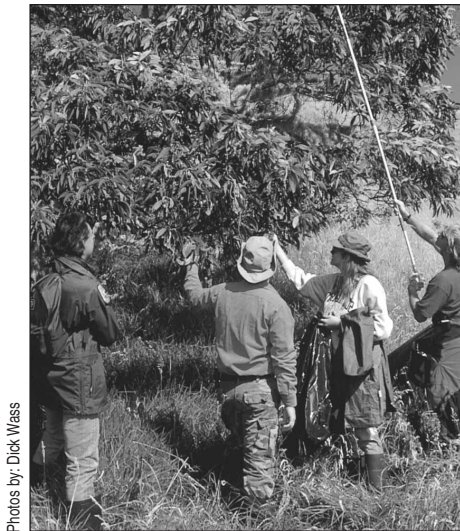
We believe they are worn with pride.

**O**

*Dick Wass is the refuge manager at Hakalau Forest NWR.*



Printed on recycled paper



Photos by: Dick Wass



*Above:  
Volunteers pick  
koa seed pods.  
Right: Refuge  
volunteers  
remove gorse.*

pushed for the development of a mosquito management strategy for the Refuge System that was finally initiated a few years ago.

Scott can rest in peace knowing that during his tenure with the Service, he seized many opportunities and truly made a difference. Scott's favorite drink was Diet Pepsi. Join me in raising a glass in recognition of his contributions.

*Steve Moore is division chief of Refuge Operations Support. Photo by Meg Laws.*

Then sketch out a flow chart on paper. Show where each "chunk" will be in relation to the others, and how each page in the website will link to others. Indicate where photos, illustrations, or other graphics will be needed to help tell your story. Ask yourself how the visitor will navigate your site. Remember, unlike print media, the visitor won't necessarily access your information in a linear sequence.